

REMARKS

Claims 101-105, 107-112, 116-120 and 123 are pending in this application. By this Amendment, claims 105 and 108-112 are amended and claims 113-115 are canceled. No new matter is added.

I. Interview

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Lin in the October 10, 2007 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

II. Objection to the Specification

As discussed during the personal interview, changing the term "lyophilic" to "wettability" is supported by the priority document because the term "lyophilic" is an error in translation. As discussed in pg. 25 of the specification, the pixel electrodes and interlevel insulating film are in a solid state and the optical material is in a liquid state. A desirable condition of the predetermined position is a condition that a liquid optical material can stay in the predetermined position as described in, for example, pgs. 3-4 of the specification. This condition corresponds to the term "wettability." Therefore, withdrawal of the objection is respectfully requested.

III. Claim Rejections Under 35 U.S.C. §112

The Office Action rejects claim 110 as allegedly being indefinite. As claim 110 has been amended to clarify the term "liquid," withdrawal of the rejection is respectfully requested.

The Office Action also rejects claims 105 and 107-115 under 35 U.S.C. §112, first paragraph because the Office Action asserts that there is no support for changing the term lyophilicity to wettability. As discussed during the interview and with respect to section II

above, the specification does support the use of the term wettability. Therefore, withdrawal of the rejection is respectfully requested.

IV. Rejections Under 35 U.S.C. §102

The Office Action rejects claim 113 under 35 U.S.C. §102(e) over U.S. Patent No. 5,972,419 (Roitman). As claim 113 is canceled, withdrawal of the rejection is respectfully requested.

V. Rejections Under 35 U.S.C. §103

The rejection of claim 113-115 under 35 U.S.C. §103 is moot in view of the cancellation thereof.

A. Claims 101-104 and 123

The Office Action rejects claims 101-104 and 123 over Roitman in view of JP 09-230129 (Hasegawa). This rejection is respectfully traversed.

1. Claims 101-104

Claim 101 recites, in part, "*enhancing a liquid repellency at a surface of the solid insulating layer*, while the solid insulating layer is in a solid state." Claim 103 recites, in part, "*enhancing a liquid repellency at a surface of the insulating layer* after patterning the insulating layer."

The Office Action acknowledges that Roitman does not teach or suggest enhancing a liquid repellency at a surface of the insulating layer. The Office Action asserts that Hasegawa teaches a method of making a display device where the insulating layer can be irradiated with UV rays in order to enhance the repellency of the ink and prevent the colors from mixing (i.e., enhancing a liquid repellency at a surface of the insulating layer). However, such an assertion is incorrect.

Hasegawa discloses a liquid crystal display element including a substrate 1 and heights 4. The area of the substrate between the heights is referred to as the crevice 3. See

paragraph [0015] of English Translation. The heights 4 prevent the ink from flowing into other pixels or spreading, and are treated to be ink repellent prior to the substrate being irradiated. See paragraphs [0023]-[0024]. However, when the substrate is irradiated, the crevice is made hydrophilic (i.e., liquid attractive). See paragraphs [0035]-[0036]. Therefore, Hasegawa does not teach enhancing the repellency at a surface of the insulating layer; rather, Hasegawa teaches enhancing a liquid attractiveness at the surface of the substrate.

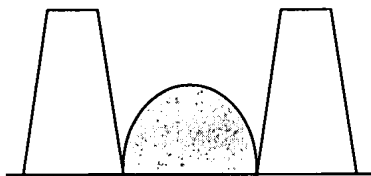
The Office Action also acknowledges that Roitman and Hasegawa do not teach the order of patterning the insulating layer and enhancing the liquid repellency of the insulating layer. The Office Action asserts that the selection of any order of performing process steps is *prima facie* obvious in the *absence of new or unexpected results*.

Assuming, *arguendo*, that Roitman and Hasegawa teach the claimed process steps, Applicants specification discloses that there are new and unexpected results by patterning in this order. For example, Applicants' specification discloses that when enhancing the liquid repellency is carried out before patterning, the inner wall has a low liquid repellency so that the liquid material stays in the region surrounded by the difference in height 111. Conversely, when the liquid repellency is enhanced after the surface of the pixel electrode is exposed, it is necessary to perform vertical irradiation of ultraviolet rays so as to prevent an increase in the liquid repellency of the inner wall of the difference in height 111. See pg. 32, lines 8-19.

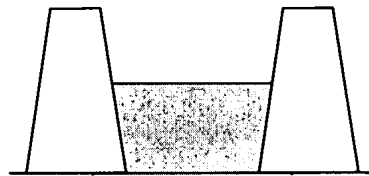
During the interview, the Examiner asserted that as Applicants specification indicated that ultraviolet irradiation may be carried out both before or after the surface of the pixel electrode is exposed, and therefore both methods achieve the same result. Therefore, according to the Examiner, the results of performing one method over the other could not be interpreted as being "unexpected." However, such an assertion is without merit because the methods do not achieve the same result.

The method recited in claim 101, for example, results in a stronger liquid repellency at the surface of the insulating layer because the insulating layer is not exposed to resists or developing solution that are used in the process for patterning the solid insulating layer. Therefore, the liquid optical material can stay in the predetermined position.

In contrast, the method recited in claim 103 achieves a different result by preventing an increase in the liquid repellency of the inner wall that would change the shape of the solidified optical material as shown in the diagram below. Figs. 8(a) and (b), below, show the shape of solidified optical material according to the strength of the liquid repellency of the inner wall. The shape shown in (a) causes circulatory shunts of electrodes because the solidified optical material is disposed between electrodes. The method recited in claim 103 prevents these circulatory shunts of electrodes.



(a) Shape of a solidified optical material when the liquid repellency of the inner wall is stronger



(b) Shape of a solidified optical material when the liquid repellency of the inner wall is weaker

Therefore, both methods achieve unexpected and different results, as none of these results are recognized in any of the applied references. For at least these reasons, withdrawal of the rejection of claims 101-104 is respectfully requested.

2. Claim 123

Claim 123 recites, in part, "arranging an optical material at the predetermined position, a first liquid repellency of a side-wall of the insulating layer to a liquid or a liquid

material being lower than a second liquid repellency of an upper surface of the insulating layer."

The Office Action acknowledges that the applied references do not explicitly teach that the repellency of the side-wall of the insulating layer is lower than the liquid repellency of the upper surface of the insulating layer and again relies on Hasegawa to disclose this feature because if UV exposure is performed prior to patterning the substrate, the repellency of the side-wall would necessarily be lower relative to the upper surface. Such an assertion is improper, for the reasons discussed below.

Under the USPTO's October 10 examination guidelines ("Guidelines"), an Office Action must provide an explanation "clearly setting forth findings of fact and the rationale(s) to support a rejection" under 35 U.S.C. §103. The "key" to supporting a rejection is the *clear articulation* of the reasons why the invention would have been obvious. These reasons must have *rational underpinnings* and may not be mere *conclusory statements*.

The Office Action asserts that it would have been obvious to modify Roitman, but provides no reason as to why one of ordinary skill in the art would have been motivated to modify Roitman to result in the features of claim 123. The Office Action's assertion that one would have modified Roitman to include the claimed feature without a rational reason as to why one of ordinary skill in the art would be motivated to modify Roitman is not based on any rational underpinning, and is simply a conclusory statement. Further, any assertion that Hasegawa cures the deficiencies of Roitman is without merit. Specifically, irradiating the areas between Hasegawa's heights does not teach or suggest that Hasegawa's heights have the claimed properties. Therefore, one of ordinary skill in the art would have realized that the applied references and the claimed invention are different processes that result in different structures. Thus, one of ordinary skill would not have had any reason to modify Roitman in

the manner asserted.

B. Claims 105, 107 and 108-112

The Office Action rejects claims 105, 107 and 108-11 under 35 U.S.C. §103(a) over Roitman in view of U.S. Patent No. 5,705,302 (Ohno). The Office Action also rejects claim 112 under 35 U.S.C. §103(a) over Roitman in view of Ohno and further in view of Hasegawa. These rejections are respectfully traversed.

Claim 105 recites, in part, a "method of manufacturing an electro-luminescent device having *a plurality of first electrodes*, a second electrode and *a plurality of organic semiconductor films*, each of the plurality of the organic semiconductor films disposed between one of the plurality of the first electrodes and the second electrode...forming an insulating layer *so as to surround* the predetermined positions." Claim 110 recites a similar feature.

The Office Action asserts that Roitman's anode 104 corresponds to the claimed first electrode, that Roitman's cathode 102 corresponds to the claimed second electrode, and that Roitman's electroluminescent layer 108 corresponds to the claimed organic semiconductor film.

However, Roitman at least does not teach or suggest a *plurality of first electrodes* or a *plurality of organic semiconductor films*. Ohno and Hasegawa fail to remedy this deficiency.

Furthermore, Roitman, Ohno and Hasegawa fail to teach forming an insulating layer so as to surround the predetermined positions. During the interview, the Examiner asserted that he could "broadly" interpret any two portions of Roitman's mask as "surrounding" a predetermined position. However, such an assertion is improper for the reasons discussed below.

Claims must be given their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. See MPEP §2111.

This means that the words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. See MPEP §2111.01. Standard English-language dictionaries, such as *The American Heritage College Dictionary*, define the plain meaning of the term surrounding as, for example, "to enclose or confine on all sides so as to bar escape or outside communication." Roitman's mask does not surround Roitman's "predetermined position" by the plain meaning of the term surround, as well as the meaning of the term when viewed in context of Applicants specification.

Thus, for at least these reasons, withdrawal of the rejection of claims 105 and 110 and the claims depending therefrom is respectfully requested.

VI. Double Patenting

The Office Action issues nonstatutory obviousness-type double patenting rejections of claims 101-104 and 123 over claims 1-3 and 7 of U.S. Patent No. 6,755,983 (the '983 Patent) in view of Roitman, claims 113-115 over claims 1-3 and 7 of the '983 Patent in view of Roitman, Okibayashi, Tada, and Cozzette, and claims 105-107 and 108-112 over claims 1-3 and 7 of the '983 Patent in view of Roitman, Ohno and Hasegawa .

As previously discussed claims 113-115 are canceled, rendering the double patenting rejection moot. Further, as none of the claims of the instant application are obvious over the applied references, withdrawal of the rejection is respectfully requested at least based on the arguments presented above.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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